

Implementing Three Voronoi Diagram Computation Algorithms and Comparing Their Performance

Student: Eren Karakaş 22002722

The task is implementing a program for calculating and visualizing the Voronoi Diagrams created by using the following three algorithms:

- Randomized Incremental Algorithm
- Fortune's Algorithm
- The Flipping Algorithm

The program will visualize the resulting 2D Voronoi Diagram as its graphical output.

The program is required to visualize the steps of Fortune's Algorithm as well.

After creating the program, there will be benchmarks for the implementations of the three algorithms and comparisons between the results.

Proposed technologies:

Algorithm implementation and visualization will be created using C++ and OpenGL. OpenGL complimentary libraries such as "glad" and "glfw" could be utilized.

If the user interface requires more complex interaction, an established GUI library such as "Dear ImGui" might be used.

Benchmarking can be implemented through the built-in facilities of C++. However, if more complex benchmarking is required, a lightweight testing library like "Doctest" could be used.